State of California
Department of Food and Agriculture
Division of Measurement Standards

Certificate Number: 5291(a)-04

California Type Evaluation Program
Certificate of Approval
for Weighing and Measuring Devices

For:

Electronic Controller/Register
Retail or Wholesale/Vehicle Tank Meter
Model: 8456XXXXX
Product Name: EMR^3
Maximum Volume Display: 999 999
Maximum Currency Display: 999 999
Maximum Totalizer Display: 99 999 999

Submitted by:

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Standard Features and Options

Standard Features
Category 1 physical seal (see Sealing, Page 2)
Display head with liquid crystal display and quadrature state pulse encoder (1000 RPM maximum)
Cab mounted interconnect box
Manual, automatic, or multi-point calibration
Multi product capable
RS-232 and RS-485 communication protocols

Optional Features
ATC-automatic temperature compensation
In-cab printing using a slip ticket printer
Roll printer for stationary applications
Preset capability with 2-stage valve
Full alpha numeric keypad
Calendar with clock
Currency capability

Model Designation:

8456	**X**	**X**	**XXX**
Basic Model: EMR^3	Safety Approval: **Blank =** Non UL approved **9 =** UL approved	Display Overlay: **3** = English **2, 4-9** = Other languages	Used to designate optional features and/or equipment

This device was evaluated under the California Type Evaluation Program (CTEP) and was found to comply with the applicable technical requirements of California Code of Regulations for "Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

Effective Date: March 22, 2004

Mike Cleary, Director

Veeder-Root
Electronic Controller/Register
Model: 8456XXXXX

Application: For use with approved and compatible vehicle mounted and stationary metering systems dispensing petroleum products, anhydrous ammonia, and LPG. The EMR3 system can replace the mechanical registers on vehicle mounted and stationary dispensing systems.

Identification:. The identification nameplate is installed on the outside of the EMR3 display head housing and is located on the right-hand side.

Sealing: Each EMR3 is equipped with a mechanical wire seal to prevent access. Inside the EMR3 display head either a switch or jumper wire is used to enable the calibration and configuration mode (C/C). Two security bolts, used to mount the display head cover, are drilled to permit a wire security seal. Once the C/C mode is activated, the user cannot return to the delivery mode until the C/C mode is deactivated. Additional sealing feature was added to make it more convenient to access calibration without removal of register head by removing one drilled security bolt located on the left rear side of register.

A delivery cannot be indicated or printed unless the system is in the normal delivery mode. The display head may also be sealed to the register mounting assembly.

Operation: The EMR3 monitors product flow using a quadrature state pulse encoder and a thermistor probe for measuring temperature. A micro-controller in the display head housing performs the temperature compensation and all calculations. During a delivery, volume and currency information is sent to the LCD display. Once a delivery is complete, results are recorded in nonvolatile memory, and may be transmitted to an optional printer.

Calibration values are reviewed by an operator using the following steps: In the pre-delivery mode, push the "Mode" key until the setup icon is on. The user can step through and view all of the setup and calibration settings by using the four navigational buttons: up (+), down (-), **NEXT** and **ENTER**.

Test Conditions: This Certificate supersedes Certificate of Approval Number 5291-02 and is issued to alter the designations of the suffixes in the model number. Software versions 349785-001 (Register Head) and 349784-001 (Interconnect Box) have not changed from the original evaluation (Certificate of Approval Number 5291-02). This certificate is issued without additional testing and is based upon information provided by the manufacturer and California Certificate of Approval Number 5291-02. Previous test conditions are repeated below for reference.

Certificate of Approval Number 5291-02: An EMR3 electronic meter register was submitted for evaluation. The emphasis of the evaluation was on design, performance, printing, and interaction with measuring systems. Tests were conducted to verify the performance by installing an EMR3 on a vehicle with a Schlumberger Industries/Neptune 1-1/2 inch Type 4D, LPG metering system (Certificate of Approval Number 4770-98). Three accuracy tests were conducted at three different flow rates with the temperature compensating system activated, and then repeated with the compensating system deactivated. The system was then placed into service. The same tests were repeated again approximately 30 days later. Other location tests were conducted to verify the performance using fuel oil on a vehicle with a Schlumberger Industries/Neptune 2 inch Type 4 metering system (Certificate of Approval Number 3395(b)-00). Three accuracy tests were conducted at three different flow rates.

Results of the evaluation indicate the device complies with applicable requirements.

Type Evaluation Criteria Used: Title 4, California Code of Regulations, 2004 Edition

Tested By: Charlie Nelson (CA), John Hayes (CT)

Reviewed By: Charlie Nelson (CA)

Updated By: Aimee Harris (CA)